

ADVANTAGE Math

Grade

8

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Introduction

The Advantage Math Series for grades 3–8 offers instruction and practice for key skills in each math strand recommended by the National Council for Teachers of Mathematics (NCTM), including

- numeration and number theory
- operations
- geometry
- measurement
- patterns, functions, and algebra
- data analysis and probability
- problem solving

Take a look at all the advantages this math series offers . . .

Strong Skill Instruction

- The **teaching component** at the top of the activity pages provides the support students need to work through the book independently.
- Plenty of **skill practice** pages will ensure students master essential math computation skills they need to increase their math fluency.
- A **problem-solving strand** is woven within skill practice pages to offer students an opportunity to practice critical-thinking skills.

teaching component

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Subtraction—Regrouping

When subtracting, look at the ones column first. If the bottom digit is greater than the top digit, you need to regroup.

Look at the ones column. Since 8 is greater than 1, you need to regroup. Take 1 ten from the tens place, add it to the ones. Subtract the ones. Then subtract the tens.

Circle yes or no to tell if you need to regroup. Then subtract to solve.

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 43 | yes | 28 | yes | 43 | yes | 57 | yes |
| -8 | no | -16 | no | -15 | no | -28 | no |
| 80 | yes | 52 | yes | 71 | yes | 63 | yes |
| -57 | no | -12 | no | -29 | no | -44 | no |
| 32 | yes | 87 | yes | 35 | yes | 46 | yes |
| -23 | no | -48 | no | -27 | no | -18 | no |
| 23 | yes | 30 | yes | 51 | yes | 72 | yes |
| -5 | no | -22 | no | -15 | no | -33 | no |
| 46 | yes | 60 | yes | 56 | yes | 32 | yes |
| -27 | no | -26 | no | -37 | no | -8 | no |

skill practice

31

Addition and Subtraction

Solve.

7 + 4 = _____ 8 + 9 = _____ 5 + 6 = _____ 5 + 8 = _____

16 + 12 = _____ 8 + 21 = _____ 11 - 8 = _____ 14 - 6 = _____

15 - 8 = _____ 18 - 9 = _____ 19 - 11 = _____ 23 - 12 = _____

| | | | | | |
|------|------|------|------|------|------|
| 21 | 74 | 58 | 9 | 35 | 26 |
| +38 | +14 | +40 | +60 | +42 | +53 |
| 98 | 84 | 46 | 67 | 78 | 60 |
| -53 | -50 | -42 | -37 | -53 | -50 |
| 342 | 732 | 63 | 834 | 930 | 365 |
| +406 | +252 | +216 | +155 | +58 | +532 |
| 735 | 839 | 956 | 648 | 597 | 475 |
| -314 | -638 | -433 | -521 | -304 | -33 |

problem solving

43

Multiplication

When you multiply large numbers by a 1-digit number, multiply each digit of the top number by the bottom number, starting with the ones place. Regroup if the product is 10 or above.

Solve.

| | | | | | |
|-----|-----|-----|------|------|------|
| 45 | 36 | 15 | 40 | 73 | 84 |
| × 3 | × 5 | × 7 | × 8 | × 2 | × 1 |
| 19 | 36 | 47 | 152 | 261 | 360 |
| × 3 | × 8 | × 2 | × 9 | × 8 | × 2 |
| 428 | 579 | 920 | 327 | 206 | 713 |
| × 2 | × 3 | × 5 | × 7 | × 3 | × 6 |
| 179 | 803 | 263 | 3917 | 5782 | 1429 |
| × 4 | × 1 | × 3 | × 5 | × 6 | × 5 |

All Pancha's Restaurants, 310 burritos are sold each year. Pancha's has been open for 5 years. How many burritos have been sold since Pancha's opened?

Plane tickets from Miami, Florida to Denver, Colorado, cost \$522 each. The 4 members of the Wilson family are buying tickets from Miami to Denver. How much will the tickets cost?

Megan bought 5 large bags of peanuts. There are 210 peanuts in each bag. How many peanuts does she have in all?

Introduction

- **Mixed-practice pages** include a variety of math concepts on one workbook page. This challenges students to think through each problem rather than rely on a predictable format.

Assessment

- The “Take a Test Drive” pages provide practice using a **test-taking** format such as those included in national standardized and proficiency tests.
- The **tracking sheet** provides a place to record the number of right answers scored on each activity page. Use this as a motivational tool for students to strive for 100% accuracy.

Answer Key

- Answers for each page are provided at the back of the books to make **checking answers quick and easy**.

53 Mixed Practice

Solve.

1 $47 \div 3$ $6 \overline{)72}$ $26.37 \div 3.9$ $29 \div 61$ $2 \overline{)58}$ $7 \overline{)105}$

2 $40 \div 63$ $34 \div 25$ $8 \overline{)168}$ $7 \overline{)322}$ $5763 \div 324$ $37.99 \div 34.5$

3 $5 \overline{)370}$ $55 \div 23$ $166 \div 13$ $453 \div 84$ $351 \div 873$ $5 \overline{)3415}$

4 $9 \overline{)7038}$ $746 \div 209$ $4 \overline{)1388}$ $287 \div 32$ $2974 \div 1098$ $472 \div 965$

5 The band called the Screammers is playing in town for the next 4 nights. There are 42 seats in the club and all 4 shows are sold out. How many tickets were sold in all?

6 Billy, Maria, and Tom just won \$72. If they split the money evenly, how many dollars will each friend have?

mixed practice

16 Take a Test Drive

Fill in the bubble beside the correct answer.

1 Which is $1,63,000,000,000 + 7,500,000 + 4,700 + 6$ in standard form?
 163,750,476
 163,007,504,706
 163,070,504,706

2 Which is greater than 1,743,863?
 1,743,801
 1,743,871
 1,743,638
 1,743,781

3 Which is equivalent to $-(-4)^2$?
 8
 9
 -16
 16

4 Which is equivalent to $35,700,000$?
 35.7×10^6
 357×10^5
 3.57×10^7
 0.357×10^7

5 Which is the standard form for 6.3×10^{-7} ?
 0.0063
 0.00063
 0.000063
 0.0000063

6 Which is the square root of 25?
 3
 4
 5
 9

7 $8^2 \cdot 8^{-2} =$
 8^{-7}
 8^3
 8^7
 8^{-3}

8 Which is equivalent to $3^2 \cdot (2^2)^2$?
 48
 63

test-taking format

Math Grade 3 Tracking Sheet

| Activity | Possible | My Score | Activity | Possible | My Score | Activity | Possible | My Score |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Unit 1 | | | Unit 2 | | | Unit 3 | | |
| 1 | 8 | | 26 | 27 | | 53 | 12 | |
| 2 | 16 | | 27 | 20 | | 54 | 10 | |
| 3 | 16 | | 28 | 30 | | 55 | 8 | |
| 4 | 18 | | 29 | 28 | | 56 | 8 | |
| 5 | 26 | | 30 | 30 | | 57 | 6 | |
| 6 | 19 | | 31 | 20 | | 58 | 6 | |
| 7 | 19 | | 32 | 18 | | 59 | 8 | |
| 8 | 20 | | 33 | 8 | | 60 | 10 | |
| 9 | 24 | | 34 | 8 | | 61 | 9 | |
| 10 | 24 | | 35 | 11 | | 62 | 4 | |
| 11 | 8 | | 36 | 12 | | 63 | 8 | |
| 12 | 8 | | 37 | 32 | | 64 | 8 | |
| 13 | 30 | | 38 | 33 | | 65 | 8 | |
| 14 | 36 | | 39 | 32 | | 66 | 9 | |
| 15 | 27 | | 40 | 32 | | 67 | 9 | |
| 16 | 27 | | 41 | 33 | | 68 | 7 | |
| 17 | 20 | | 42 | 33 | | 69 | 6 | |
| 18 | 30 | | 43 | 33 | | 70 | 5 | |
| 19 | 18 | | 44 | 32 | | 71 | 5 | |
| 20 | 30 | | 45 | 33 | | 72 | 5 | |
| 21 | 8 | | 46 | 33 | | 73 | 7 | |
| 22 | 8 | | 47 | 23 | | 74 | 6 | |
| 23 | 36 | | 48 | 23 | | 75 | 8 | |
| 24 | 36 | | 49 | 33 | | 76 | 8 | |
| 25 | 27 | | 50 | 33 | | 77 | 7 | |
| | | | 51 | 8 | | | | |
| | | | 52 | 8 | | | | |

tracking sheet

Comparing and Ordering Numbers

1

To compare and order numbers, start with the greatest place value. If these are identical, continue until you come to a place value where the numbers differ.

To compare 356,197 and 356,917 to find the greater number, you can use a place-value chart:

| Hundred-Thousands | Ten-Thousands | Thousands | Hundreds | Tens | Ones |
|-------------------|---------------|-----------|----------|------|------|
| 3 | 5 | 6, | 1 | 9 | 7 |
| 3 | 5 | 6, | 9 | 1 | 7 |

Working from left to right, the digits in each place are identical until you reach the hundreds place. You can say that 356,917 is greater than 356,197 because 9 is greater than 1.

Circle the greatest number in each pair.

- | | | | |
|--------------------|-----------|-----------|-----------|
| 1 1,565,378 | 1,565,738 | 29,005 | 29,505 |
| 2 2,987 | 2,978 | 361,461 | 361,416 |
| 3 76,246 | 76,264 | 5,632,765 | 5,632,675 |
| 4 413 | 431 | 557,149 | 575,941 |

Write the numbers in order from greatest to least.

- | | |
|---------------------------------|---------------------------|
| 5 27,419; 27,194; 27,914 | 386,143; 368,413; 386,341 |
| 6 43,548; 43,458; 43,845 | 512,876; 215,786; 521,876 |

The attendance at some baseball games over the past six days is shown in the table to the right.

- 7** Put the attendance per day in order from least to greatest.

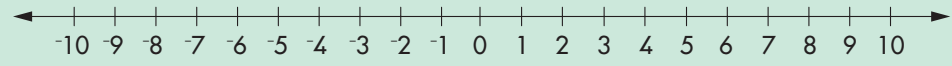
| Day | Attendance |
|-----------|------------|
| Monday | 35,167 |
| Tuesday | 35,716 |
| Wednesday | 53,617 |
| Thursday | 53,716 |
| Friday | 35,671 |
| Saturday | 53,167 |

Comparing and Ordering Integers

2

Integers are all the positive whole numbers, zero, and their opposites (...-3, -2, -1, 0, 1, 2, 3).

A number line is useful in comparing integers. As the integers move from left to right on the number line, they are ordered from least to greatest.



Compare. Use < or >.

- | | | | |
|-------------------|-----------|---------|---------|
| 1 -6 ○ -8 | -9 ○ +8 | +6 ○ -7 | +5 ○ -5 |
| 2 +7 ○ -3 | +5 ○ +6 | -4 ○ +9 | 0 ○ -3 |
| 3 -10 ○ +2 | -6 ○ +8 | +8 ○ -5 | +1 ○ -1 |
| 4 +12 ○ -9 | -10 ○ +10 | -5 ○ -3 | -2 ○ 0 |

Order the integers from greatest to least.

- | | | |
|------------------------------|---------------|--------------------------|
| 5 0, -4, +6, -3 | -9, -5, -6, 0 | -7, -5, 0, +10, -10 |
| 6 -2, +3, +2, +8, -10 | -4, +8, 0, -5 | +13, +10, -5, -6, -4, +7 |

7 The chart below shows the temperatures for the last five days. Place these temperatures in order from least to greatest.

| Day | Temperature |
|-----------|-------------|
| Monday | -5°F |
| Tuesday | -7°F |
| Wednesday | 0°F |
| Thursday | 3°F |
| Friday | 2°F |

Comparing and Ordering Fractions and Decimals

3

To compare and order decimals, line up the decimal points. Then, beginning at the left, find the first place where the digits differ. Continue comparing places from left to right.

0.786
0.867
0.768

These decimals in order from greatest to least are 0.867, 0.786, 0.768.

To compare and order fractions, convert to equivalent fractions with the least common denominator (LCD), and then compare the numerators.

$\frac{4}{5}, \frac{2}{3}, \frac{1}{2}$
 $\frac{4}{5} = \frac{24}{30}$
 $\frac{2}{3} = \frac{20}{30}$
 $\frac{1}{2} = \frac{15}{30}$

These fractions are written in order from least to greatest as follows:

$\frac{1}{2}, \frac{2}{3}, \frac{4}{5}$

Order these fractions from least to greatest.

1 $\frac{3}{4}, \frac{5}{6}, \frac{7}{8}$

$\frac{7}{10}, \frac{5}{8}, \frac{2}{3}$

$\frac{5}{7}, \frac{1}{2}, \frac{3}{5}$

2 $\frac{3}{10}, \frac{1}{3}, \frac{1}{5}$

$\frac{5}{9}, \frac{5}{8}, \frac{4}{7}$

$\frac{1}{4}, \frac{1}{3}, \frac{1}{5}$

3 As part of her science experiment, Joan recorded the heights of some seedlings grown under varying conditions. Compare and order these seedlings from smallest to tallest.

| Seedling Number | Height |
|-----------------|----------|
| 1 | 0.895 cm |
| 2 | 0.983 cm |
| 3 | 0.985 cm |
| 4 | 0.598 cm |
| 5 | 0.893 cm |

Comparing and Ordering Fractions and Integers

4

★ Fractions and integers may be compared and ordered using a number line. Remember that as we move from left to right on the number line, numbers are ordered from least to greatest. Fractions and mixed numbers fall between whole numbers.



Order these fractions and integers from least to greatest.

① $2\frac{1}{5}$, -3 , 0 , $-\frac{1}{9}$, $2\frac{1}{2}$, -6

$\frac{3}{4}$, 1 , $-4\frac{1}{5}$, -1 , 3 , $-\frac{7}{8}$

② -4 , -2 , 2 , $-3\frac{1}{8}$, $3\frac{1}{5}$, 4

-2 , 9 , $-\frac{1}{4}$, $\frac{1}{6}$, -4 , $\frac{3}{5}$

③ 7 , 2 , -3 , $-\frac{1}{9}$, $2\frac{1}{2}$, -6

6 , 1 , $-4\frac{1}{5}$, -1 , 3 , $-\frac{7}{8}$

④ $-1\frac{1}{2}$, -3 , $-6\frac{1}{5}$, $-\frac{1}{9}$

$2\frac{1}{2}$, 1 , $-4\frac{1}{5}$, -1 , 3 , $-\frac{7}{8}$

⑤ 0 , $\frac{1}{8}$, $-5\frac{1}{5}$, $3\frac{1}{3}$, $-\frac{1}{2}$

7 , -7 , 0 , $\frac{5}{6}$, $-\frac{5}{6}$, $3\frac{1}{2}$

⑥ 10 , -10 , $\frac{3}{4}$, $-\frac{3}{4}$, $1\frac{3}{5}$

0 , 8 , -8 , $-\frac{5}{6}$, $\frac{5}{6}$, $2\frac{7}{8}$

⑦ An airplane is flying $2\frac{1}{2}$ miles above the ocean's surface. A submarine is $1\frac{3}{4}$ miles beneath the surface. Which craft is closer to the ocean's surface? Explain your answer.